

**DAILY HOMEWORK QUIZ**

For use after Lesson 2.5, pages 82–87

1. Identify the hypothesis and the conclusion of the if-then statement.

If the temperature begins falling, then the rain will change to snow.

2. Rewrite the statement as an if-then statement.

The measure of a right angle is  $90^\circ$ .

3. What can you conclude from the given true statements?

If two lines are parallel, then they never meet. Two lines are parallel.

4. Write the if-then statement that follows from the pair of true statements.

If the rain becomes sleet, the roads will ice over. If the roads ice over, then school will be delayed.

Oct 8-7:30 AM



Oct 8-11:55 AM

37.

$$\pm 5 \quad x^2 = 25$$

$$\pm 4 \quad y^2 = 16$$

$$\pm 3 \quad z^2 = 9$$

$$(x+y-z)^2$$

$$(5+4+3)^2$$

$$12^2$$

$$\textcircled{144}$$

Oct 8-11:57 AM

34.

$$\begin{array}{r} 50 \\ 35 \\ + 8 \\ \hline 93 \end{array}$$

5250 in Recreation

35%

$$35x = 5250$$

$$x =$$

7%

Oct 8-11:59 AM

10/8

## 2.6 Properties of Equality and Congruence

**Properties of Equality and Congruence**Reflexive Property  $a = a$  (Or  $\cong$ )

Ex:  $AB = AB$   $\overline{AB} \cong \overline{AB}$   
 $m\angle 1 = m\angle 1$   $\angle 1 \cong \angle 1$

Symmetric Property If  $a = b$ , then  $b = a$ . (Or  $\cong$ )

Ex: If  $AB = CD$ , then  $CD = AB$ .  
 If  $\angle 1 \cong \angle 2$ , then  $\angle 2 \cong \angle 1$ .

Transitive Property If  $a = b$ , and  $b = c$ , then  $a = c$ . (Or  $\cong$ )

Ex: If  $AB = CD$ , and  $CD = EF$ , then  $AB = EF$ .  
 If  $\overline{AB} \cong \overline{CD}$ , and  $\overline{CD} \cong \overline{EF}$ , then  $\overline{AB} \cong \overline{EF}$ .

Oct 8-7:22 AM

The Addition Property—If  $a = b$  and  $c = d$ , then  $a + c = b + d$ .  
 (Add an equal value to BOTH sides of the equation.)

Ex.

$$y - 8 = 9$$

$$\text{then } y = 17$$

Ex.

$$y - 4 = 2$$

$$\text{then } y = 6$$

Oct 8-7:24 AM

The Subtraction Property—If  $a = b$  and  $c = d$ , then  $a - c = b - d$ .  
(Subtract an equal value from BOTH sides of the equation.)

Ex.

$$\begin{aligned} \text{If } x + 2 &= 9 \\ \text{Then } x &= 7 \end{aligned}$$

Ex.

$$\begin{aligned} \text{If } AB &= CD \\ \text{Then } AB - XY &= CD - XY \end{aligned}$$

Oct 8-7:24 AM

The Multiplication Property—If  $a = b$ , then  $a \cdot c = b \cdot c$ .  
(Multiply an equal value to BOTH sides of the equation.)

Ex.

$$\text{If } \frac{1}{2}x = 10$$

$$\text{Then } x = 20$$

Ex.

$$\text{If } m \angle 1 = m \angle 2$$

$$\text{Then } 2 \cdot m \angle 1 = 2 \cdot m \angle 2$$

Oct 8-7:24 AM

The Division Property—If  $a = b$  and  $c \neq 0$ , then  $\frac{a}{c} = \frac{b}{c}$ .

(Divide an equal value from BOTH sides of the equation.)

Ex.

$$\text{If } 2x = 40$$

$$\text{Then } x = 20$$

Ex.

$$\text{If } AB = BC$$

$$\text{Then } \frac{AB}{2} = \frac{BC}{2}$$

Oct 8-7:24 AM

The Substitution Postulate—If  $a = b$ , then  $a$  can be substituted for  $b$  in any equation or inequality.

Ex.

If  $x + y = 13$  and  $y = 5$ , then  $x + \underline{5} = 13$ .

Ex.

$$\text{If } m\angle 2 = 40 \text{ and } m\angle 1 = m\angle 2,$$

$$\text{Then } m\angle 1 = 40.$$

Oct 8-7:25 AM

Fill in the reasons why for each step.

Examples:

1.

$$2x - 3 = 13$$

$$2x = 16$$

$$x = 8$$

Given  
Add.  
Div.

2.

$$4x = 8$$

$$x = 2$$

Given  
Div

Oct 8-11:28 AM

3.

$$\frac{1}{2}x + 2 = 11$$

$$\frac{1}{2}x = 9$$

$$x = 18$$

Given  
Subtr.  
Mult.

4.

$$7 = 3x - 5$$

$$12 = 3x$$

$$4 = x$$

$$x = 4$$

Given  
Add  
Div  
Symm.

Oct 8-11:29 AM

Justify each statement.

5. Reflexive  $m\angle 1 = m\angle 1$

6. Add. If  $m\angle 1 = m\angle 2$ , then  $m\angle 1 + m\angle 3 = m\angle 2 + m\angle 3$

7. Mult If  $AB = CD$ , then  $2 \cdot AB = 2 \cdot CD$ .

8. Symm. If  $RS = XY$ , then  $XY = RS$

9. Transitive If  $m\angle A = m\angle B$ , and  $m\angle B = m\angle C$ , then  $m\angle A = m\angle C$

10. DIV. If  $2 \cdot m\angle 1 = 90$ , then  $m\angle 1 = 45$

Oct 8-11:29 AM

**Other things we already know:**

Vertical  $\angle$ s are  $\cong$  Def. of midpoint; Def. of angle bisector; Def. of supplementary angles; Def. of complementary angles; Segment addition postulate; Angle addition postulate; Congruent complements theorem; Congruent supplements theorem

Oct 8-7:25 AM

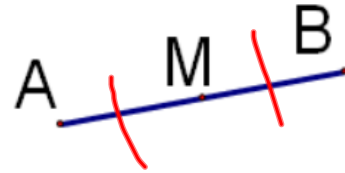
Give the reason for the conclusions below.

11. Given: M is the midpoint  $\overline{AB}$

Conclusion:  $AM = MB$

Reason: \_\_\_\_\_

Def. of midpoint



Oct 8-11:29 AM

12. Given:  $\angle 1$  and  $\angle 2$  are complementary.

Conclusion:  $m\angle 1 + m\angle 2 = 90$

Reason: def. of compl. angles

Oct 8-11:30 AM



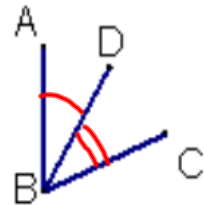
13. Given: diagram to the right  
Conclusion:  $CA + AT = CT$   
Reason: \_\_\_\_\_



Segment Add. Post.

Oct 8-11:30 AM

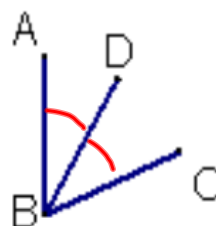
14. Given: diagram  
Conclusion:  $m\angle ABD + m\angle DBC = m\angle ABC$   
Reason: \_\_\_\_\_



Angle Add. Post.

Oct 8-11:30 AM

15. Given:  $\overrightarrow{BD}$  bisects  $\angle ABC$   
Conclusion:  $m\angle ABD = m\angle DBC$   
Reason: \_\_\_\_\_



def of angle bisector

Oct 8-11:30 AM

HW

p91 7-18

Oct 8-7:29 AM